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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/348,169	07/07/1999	YASU HARU YOSHIDA	FQ5-404	4848

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EXAMINER

LY, NGHI H

ART UNIT	PAPER NUMBER
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2682

DATE MAILED: 10/17/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/348,169

Applicant(s)

YOSHIDA, YASUHARU

Examiner

Nghi H. Ly

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-5 and 8-36 is/are rejected.
- 7) ☒ Claim(s) 6 and 7 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 11, 12. 6) ☐ Other: ____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-5, 8-21, 24-28, 30, 31 and 34-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over D'Amico et al (US 5,127,100) in view of D'Amico et al (US 5,159,593).

Regarding claims 1, 4, 13, 15, 25 and 35, D'Amico et al (US 5,127,100) teaches an automobile communications method for an onboard mobile station in a plurality of radio zones (see abstract) which are consecutively arranged along a road (see fig.1 see cells 22 to 26), comprising the steps of: providing each of the radio zones with a plurality of predetermined communication frequencies, controlling a communication frequency used in each of the radio zones in the division scheme such that simultaneous transmission at a same communication frequency is not permitted in adjoining radio zones (see column 1 lines 17-19 and column 6 lines 24-26) and different time slots are allocated for communications at a same communication frequency in adjoining radio zones (see column 3 lines 36-42). D'Amico et al (US 5,127,100) does not specifically disclose switching a time slot allocated to the on-board mobile station to continuously

communicate with the on board mobile station over the radio zones. D'Amico et al (US 5,159,593) teaches switching a time slot allocated to the on-board mobile station to continuously communicate with the on board mobile station over the radio zones (see column 4 lines 21-24). Therefore, it would have been obvious to one of ordinary skills in the art at the time of the invention was made to provide the above teaching of D'Amico et al (US 5,159,593) into the system of D'Amico et al (US 5,127,100) so that the subscriber may consider handoff to another cell base station with adequate signal level (see D'Amico et al (US 5,159,593) column 4 lines 5-8).

Regarding claims 2, 3 and 14, the combination of D'Amico et al (US 5,127,100) and D'Amico et al (US 5,159,593) further teaches the time slot used for communication with the on-board mobile station is switched in such a manner that communication with the on-board mobile station (see D'Amico et al (US 5,159,593) column 4 lines 21-24) is continuously performed at a same or different communication frequency over the radio zones (see D'Amico et al (US 5,127,100) column 3 lines 36-42 or column 6 lines 24-26, respectively).

Regarding claims 5 and 36, D'Amico et al (US 5,127,100) further teaches the plurality of predetermined communication frequencies in each radio zone are generated from a single reference frequency in accordance with a predetermined conversion to be in a frequency-coherence state (see D'Amico et al (US 5,127,100) column 6 lines 19-28).

Regarding claims 8, 16 and 31, D'Amico et al (US 5,127,100) further teaches each of the predetermined communication frequencies is used for both transmission

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and reception to perform communication with the on-board mobile station (see column 6 lines 22-24) according to TDMA/TDD (Time Division Multiple Access/Time Division Duplex) scheme (see column 3 lines 62-65).

Regarding claims 9, 17, 21, 26 and 27, D'Amico et al (US 5,127,100) further teaches the plurality of predetermined communication frequencies in each radio zone are generated from a single reference frequency in accordance with a predetermined conversion to be in a frequency-coherence state (see D'Amico et al (US 5,127,100) column 6 lines 19-28), wherein each of the predetermined communication frequencies is used for both transmission and reception to perform communication with the on-board mobile station according to TDMA/TDD (Time Division Multiple Access/Time Division Duplex) scheme (see column 3 lines 62-65).

Regarding claims 10, 18, 24, 28 and 34, D'Amico et al (US 5,127,100) further teaches the plurality of predetermined communication frequencies comprises a plurality of different pairs of first frequencies and second frequencies, wherein the first frequencies are generated from one reference frequency in accordance with a first predetermined conversion so that the first frequencies are in a frequency-coherence state over the radio zones (see D'Amico et al (US 5,127,100) column 6 lines 19-28).

Regarding claim 11, D'Amico et al (US 5,127,100) further teaches the on-board mobile station generates a transmission local signal of the second frequency from a radio signal received from the fixed station system in accordance with a second predetermined conversion (see D'Amico et al (US 5,127,100) column 6 lines 19-28).

Regarding claims 12 and 19, D'Amico et al (US 5,127,100) further teaches the fixed station system generates a reception local frequency from the first frequency in accordance with the second predetermined conversion as used by the on-board mobile station so that the reception local frequency and a radio signal received from the on-board mobile station are in a frequency-coherence state (see D'Amico et al (US 5,127,100) column 6 lines 19-28).

Regarding claims 20 and 30, D'Amico et al (US 5,127,100) further teaches the on-board mobile station comprises frequency-in-use regenerator (see fig.2 box 60) for regenerating the communication frequency in use from a signal received from a fixed station which forms a radio zone for communication: and a communication controller controlling communication with the fixed station using the allocated time slot at the communication frequency in use (see column 6 lines 19-28).

3. Claims 22, 23, 29, 32 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over D'Amico et al (US 5,127,100) in view of D'Amico et al (US 5,159,593) and further in view of Horiguchi (US 5,737,329).

Regarding claims 22, 23, 29, 32 and 33, the combination of D'Amico et al (US 5,127,100) and D'Amico et al (US 5,159,593) teaches each of the plurality of predetermined communication frequencies is used for transmission and reception frequencies and wherein the communication controller carries out communication with the fixed station according to a TDMA/TDD scheme using the oscillation frequency as a transmission local frequency (see rejection of claims 8 and 16 above) and frequency-in-

use regenerator (see fig.2 box 60). The combination of D'Amico et al (US 5,127,100) and D'Amico et al (US 5,159,593) does not specifically disclose the regenerator comprises: a demodulator for demodulating the received signal, and a phase controller for performing phase control on a signal of an oscillation frequency based on an output of the demodulator such that the demodulator acquires synchronization. Horiguchi teaches the regenerator comprises: a demodulator for demodulating the received signal (see column 2 lines 28-31), and a phase controller for performing phase control on a signal of an oscillation frequency based on an output of the demodulator such that the demodulator acquires synchronization (see fig.10B connection between boxes 240b and 210b, 270 and 210b). Therefore, it would have been obvious to one of ordinary skills in the art at the time of the invention was made to provide the above teaching of Horiguchi into the system of D'Amico et al (US 5,159,593) and D'Amico et al (US 5,127,100) so that the transmission signals transmitted from the first and the second transmitter-receiver can be communicated without any interference (see column 5 lines 27-30).

Allowable Subject Matter

4. Claims 6 and 7 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding claim 6, the combination of D'Amico et al (US 5,127,100) and D'Amico et al (US 5,159,593) teaches the automobile communication method according to claim

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4. The combination of D'Amico et al (US 5,127,100) and D'Amico et al (US 5,159,593) fails to teach a predetermined number N (N is an integer equal to or greater than 2) of time slots are determined in one period in each of the radio zones, wherein one time slot is assigned to a single on-board mobile station and M (M is an integer equal to or greater than 2) predetermined communication frequencies are sequentially switched from one to another at a timing of every N/M time slot.

Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nghi H. Ly whose telephone number is (703) 605-5164. The examiner can normally be reached on 8:30 am-5:30 pm Monday-Friday.

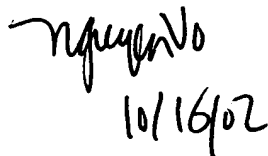
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian Chin can be reached on (703) 308-6739. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9314 for regular communications and (703) 872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

Nghi H. Ly



October 10, 2002



10/16/02

NGUYENT. VO
PRIMARY EXAMINER